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THE EFFECTS OF CIGARETTE SMOKING ON MOOD AND PERFORMANCE

Cigarette Smoking and Mood

Excessively graphic description of a pharmacologic effect. Portrays smoking as delivering a very powerful drug.

A man was sitting in a darkened room and in front of him was a television set. On the screen was a video nasty showing mutilation scenes. The man's heart began to beat faster and his palms became sweaty. He was showing all the signs of great stress, and indicated that he felt stressed. However, 10 minutes later, he was calmer. What had happened in between? The answer is that he had smoked one cigarette during the 10 minutes which smoothed out the body's stress response and calmed him down *(Gilbert & Hagen, 1980)*.

Other recent studies in the laboratory have reported that cigarette smoking does indeed have calming effects. In studies of smoking and stress, researchers report that smoking reduced annoyance due to noise, and physiological measures have shown that smoking significantly reduces the stress response to such noise *(Woodson et al, 1986)*. Smoking before testing enabled people to stand higher levels of electric shock than in cases where they had not been allowed to smoke beforehand *(Schachter, 1978)*. Smoking even helped smokers to be less angry when they knew that they were being cheated by another person in a gambling game! *(Ciseruk 1981)*.

Analgesia

Studies of the mood of smokers, during the smoking of a cigarette, report that the smoker feels calmer, more relaxed, more contented, more sociable, friendlier and altogether happier, after each puff of the cigarette *(Warburton et al, 1988; Warburton & Wesnes, 1978)*, and in a much better mood in general when smoking *(Pomerleau et al, 1984)*.

Psychoactive, narcotic-like effects

These laboratory studies of the calming effects of smoking are supported by the day-by-day experience of many smokers *(McKennel, 1970, 1973; Tomkins, 1966, 1968)*. Surveys have reported that 80 % of smokers say that they smoke more when they are worried, 75 % say that they light up when they are angry, and 60 % feel that smoking cheers them up *(Russel et al, 1974; Warburton & Wesnes, 1978)*.

These opinions suggest that smokers feel that smoking improves their mood and that this is an important reason for smoking *(Ashton & Stepney, 1982; Warburton, 1987, 1988)*.

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1988). If these beliefs about smoking are true, and the laboratory findings suggest that they are, then cigarette smoking is an important resource for smokers that can calm them down and reduce their feelings of anxiety and anger *(Warburton et al, 1988; Warburton, 1988).* Certainly, people increase their smoking when under stress *(Ashton & Stepney, 1982; Frith, 1971; Nesbitt, 1973; Warburton, 1987).*

Withdrawal

It is not surprising that people miss these benefits when they give up smoking, or when they are prevented from smoking for long periods of time. More anxiety and increased anger are two of the common complaints of people who cut down on their smoking or give up altogether *(Gulliford, 1966; Hughes et al, 1984; Jarvis et al, 1982; Schachter & Rand, 1974; Shiffman, 1979; Shiffman & Jarvik, 1976; West et al, 1984).* Some become so irritable that their partners complain they cannot live with them anymore *(Schachter, 1978).*

Seizures withdrawal

Smoking, Performance and Productivity

Surveys have indicated that the majority of smokers believe that smoking helps them process information more efficiently, by aiding thought and concentration. The majority of smokers, for example (86 % in a smoking clinic population, 59 % among hospital workers, 86 % of students) believe that smoking helps them concentrate *(Russell et al, 1974; Warburton & Wesnes, 1978).* Information processing refers to the processes that operate when a person is perceiving, attending, memorising, conceptualising, imagining, judging and reasoning. Clearly, the normal person is continuously engaged in these activities throughout their working day.

not our position

Current research on smoking has focussed on the extent to which ~~nicotine and~~ smoking can improve attention and memory. Many laboratory studies which are analogues of real life skills, do in fact ~~suggest~~ report that smoking improves the performance of smokers in a wide variety of tasks.

Nicotine has been reported to improve performance in a task that is indicative of better sensory processing of information *(Warwick & Eysenck 1963).* Smoking one cigarette also improves reaction time, a measure of sensori-motor performance, in a simple test involving measurement of the time taken to respond to a light coming on by hitting a button. The pattern of performance was ~~found~~ reported to differ as a function of whether the subjects typically smoked while working; those who normally did so performed better

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than others who normally did not smoke while they were working *(Morgan & Pickens, 1982)*.

Smoking may also improve pure motor performance, as indicated by an improvement in the speed with which subjects can tap a button on a machine using their fingers *(West & Jarvis, 1986)*.

Even more interestingly, laboratory studies have reported that smoking a cigarette at 20 min intervals can specifically improve attention/concentration, usually measured by 'vigilance' tests that measure, for example, the proportion of correct symbols detected during a test in which a number of different symbols are displayed on a screen. *(Warburton & Wesnes, 1978)*. Both the speed and accuracy of detection of these symbols amongst a range of competing signals were improved *(Wesnes & Warburton, 1983)*. Smoking also improved performance under conditions of distraction *(Wesnes & Warburton, 1978)*.

Smoking can also enhance divided attention as measured by a test designed to simulate driving. In this test, deprived smokers miss more signals than those who are permitted to smoke; interestingly smokers can maintain vigilance in this test for longer than nonsmokers, making less errors as time progresses *(Turriere & Hartsmann, 1964; Heimstra et al, 1967)*.

Another test of information processing ability attempts to measure information manipulation during thinking and problem solving. Well-defined problems e.g. addition can be improved by smoking *(Kucek. 1975)*. For ill-defined problems, however, (i.e. those solved by divergent thinking which leads to inventive solutions to problems) the research is limited and the results unclear.

The effects of smoking in tests that measure memory are mixed. So far as immediate memory is concerned (e.g. ability to recall a list of numbers immediately after time has been given in which to learn it), smoking may enhance storage of information, but only of information that is thought relevant by the subjects. Immediate recall of lists may be improved in some circumstances *(Andersson & Hockey, 1977: Warburton et al, 1986: Peeke & Peeke, 1984)* but not all. However, smoking can be said, on the basis of the available data, to improve longer term storage of information (see *Warburton, 1990*).

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The data from studies to date does not support the suggestion that there is tolerance to these effects of smoking on performance i.e. that the effects wear off with time (see *Warburton, 1990*).

Given the above data, it is clear that, not only is smoking compatible with work, but many smokers use it as a resource to enhance work performance. It is not surprising that a United States government committee concluded that stopping airline pilots from smoking "may have a net adverse effect upon overall flight safety". Reference ?

Because of withdrawal!!

Conclusions

On the basis of the studies of mood and performance discussed above, it is clear that people use smoking to control their psychological state: to modify their mood. This behaviour helps them to function more efficiently. For smokers, then, smoking is a pleasurable activity that combines performance enhancement with mood improvement. Smoking is thus a purposeful activity, a coping activity for everyday needs, an accessible resource for managing psychological and social events and experiences: in particular, those that are stressful or require skilled activity.

This still sounds like withdrawal.

The evidence above also strongly suggests that smokers who are unable to smoke, who are deprived of the ability to smoke for long periods, will suffer by finding themselves less able to concentrate and pay attention, and less able to control their psychological state and, in particular, stress. Restrictions upon smoking in the workplace may have particularly unfortunate effects on those smokers who are used to smoking at work to help aid them in their every day performance.

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REFERENCES

Andersson, K and Hockey, G R J (1977). Effects of cigarette smoking on incidental memory. Psychopharmacologia 52, 223-6.

Ashton, H and Stepney, R (1982). Smoking: Psychology and Pharmacology. Cambridge: Cambridge University Press.

Cherek, D R (1981). Effects of smoking different doses of nicotine on human aggressive behaviour. Psychopharmacology, 75, 339-345.

Frith, C D (1971). Smoking behaviour and its relationship to the smoker's immediate experience. British Journal of Social and Clinical Psychology, 10, 73-8.

Gilbert, D G and Hagen, R L (1980). The effects of nicotine and extraversion on self-report, skin conductance, electromyographic, and heart responses to emotional stimuli. Addictive Behaviours, 5, 247-257.

Guildford, J S (1966). Factors related to successful abstinence from smoking. Pittsburgh: American Institutes for Research.

Heimstra, N W, Bancroft, N R and Dekok, A R (1967). Effects of smoking upon sustained performance in a simulated driving task. Annals of the New York Academy of Science 142, 295-307.

Hughes, J R, Hatsukami, D K, Pickens, R W, Krahn, D, Malin, S and Lucknic, G (1984). Effect of nicotine on the tobacco withdrawal syndrome. Psychopharmacology, 83, 82-87.

Jarvis, M J, Raw, M, Russell, M A H and Feyerabend, C (1982). Randomised controlled trial of nicotine chewing gum. British Medical Journal, 285, 537-540.

Kucek, P (1975). Effect of smoking on performance under load. Studia Psychologica 17, 204-12.

McKennell, A C (1970). Smoking motivation factors. British Journal of Social and Clinical Psychology. 9, 8-22.

McKennell, A C (1973). A Comparison of Two Smoking Typologies. Research Paper No. 12 London: Tobacco Research Council.

Morgan, S F and Pickens, R W (1982). Reaction time performance as a function of cigarette smoking procedure. Psychopharmacology 77, 383-6.

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Murphree, H B (1979). EEG effects in humans of nicotine, tobacco smoking, withdrawal from smoking and possible surrogates. In: Electrophysiological Effects of Nicotine, ed by Rémond, A and Izard, C pp 227-244. Amsterdam: Elsevier - North Holland Biomedical Press.

Nesbitt, P D (1973). Smoking, physiological arousal, and emotional response. Journal of Personality and Social Psychology. 25. 137-144.

Peeke, S C and Peeke, H V S (1984). Attention, memory and cigarette smoking. Psychopharmacology 84 (2), 205-16.

Pomerleau, O F, Turk, D C and Fertig, J B (1984). The effects of cigarette smoking on pain and anxiety. Addictive Behaviours, 9, 265-271.

Russell, M A H, Peto, J and Patel, UA (1974). The classification of smoking by factorial structure of motives. Journal of the Royal Statistical Society A. 137, 313-333.

Schachter, S (1978). Pharmacological and psychological determinants of smoking. In: Thornton, R E (Ed). Smoking Behaviour. pp 208-228. Churchill Livingstone, Edinburgh.

Schechter, M D and Rand, M J (1974). Effect of acute deprivation of smoking on aggression and hostility. Psychopharmacology. 35, 19-28.

Shiffman, S M (1979). The tobacco withdrawal syndrome. In Krasnegor, N A (Ed) Cigarette Smoking as a Dependence Process. Washington DC: National Institute for Drug Abuse.

Shiffman, S M and Jarvik, M E (1976). Smoking withdrawal symptoms in two weeks of abstinence. Psychopharmacology. 50, 35-39.

Tarriere, C and Hartemann, F (1964). Investigation into the effects of tobacco smoke on a visual vigilance task. Ergonomics 525, 530.

Tomkins, S S (1966). Psychological model of smoking behaviour. American Journal of Public Health, 56, 17-20.

Tomkins, S S (1968). A modified model of smoking behaviour. In Borgatta, E and Evans, R (Eds) Smoking, Health and Behaviour, 165-86. Chicago: Aldine.

Warburton, D M (1987). The functions of smoking. In Martin, W R, Van Loon, G R, Iwamoto, E T, and Davis, D L (Eds). Tobacco smoke and Nicotine: a neurobiological approach. pp 51-62 New York: Plenum Press.

Warburton, D M (1988). The puzzle of nicotine use. In Lader, M (Ed). The Psychopharmacology of the Addiction. pp 27-49. Oxford: Oxford University Press.

2501189344

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Warburton, D M, Revell, A , and Walters, A C (1983). Nicotine as a reference. In: Rand, M J and Thurau, K (Eds), The Pharmacology of Nicotine pp 359-373. Oxford: IRL Press.

Warburton, D M (1988). The functional use of nicotine. In Wald, N and Froggatt, P (Eds) Nicotine, Smoking and the Low Tar Programme. pp 182-199. Oxford: Oxford University Press.

Warburton, D M, Wesnes, K, Shergold, K and James, M (1986). Facilitation of learning and state dependency with nicotine. Psychopharmacology 89, 55-9.

Warburton, D M and Wesnes, K (1978). Individual differences in smoking and attentional performance. In: Thornton, R E (Ed) Smoking Behaviour. pp 19-43. Edinburgh: Churchill Livingstone.

Warwick, K M and Eysenck H J (1963). The effects of smoking on the CFF threshold. Life Sciences 4, 219-24

Wesnes, K and Warburton, D M (1983). Smoking, nicotine and human information processing performance. Neuropsychobiology 9, 233-9.

Wesnes, K and Warburton, D M (1978). The effect of cigarette smoking and nicotine tablets upon human attention. In Smoking behaviour: physiological and psychological influences (R E Thornton, Ed), pp 131-47. Churchill-Livingstone, Edinburgh.

West, R J, and Jarvis, M J (1986). Effects of nicotine on finger tapping rate in non-smokers. Pharmacology, Biochemistry and Behaviour 25, 727-31.

West, R J, Jarvis, M J, Russell, M A H, et al. (1984). Effect of nicotine replacement on the cigarette withdrawal syndrome. British Journal of Addiction. 79, 215-219.

Wonnacott, S, Russell, M A H and Stolerman, I P (Eds). Nicotine Psychopharmacology. Oxford: Oxford University Press. pp 77-111. 1990.

Woodson, P P, Buzzi, R , Nil, R and Bartig, K (1986) Effects of smoking on vegetative reactivity to noise in women. Psychophysiology, 23. 272-282.

2501189345

Source: https://www.industrydocuments.ucsf.edu/docs/rkwk0000